Chapter 2

TECHNICAL INFORMATION

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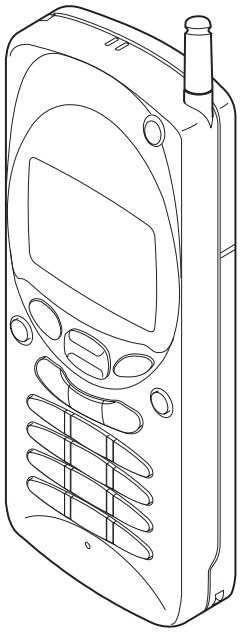
Product Selection

Handportables

The NHB–3 is a handportable cellular phone for North American DCS1900 system.

There is one design version for the transceiver: Nokia 1.

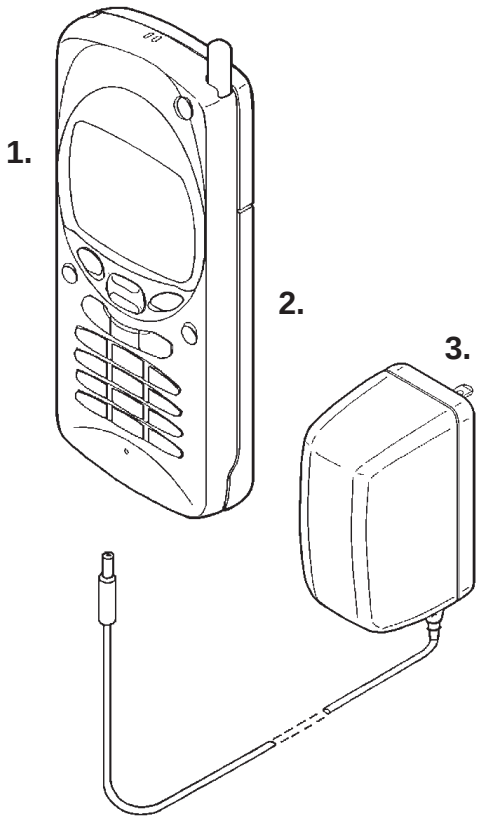


1.

Item/name:	Type code:	Material code:
1. Transceiver (Nokia 2190E)	NHB–3NB	0501008

Handportable Options

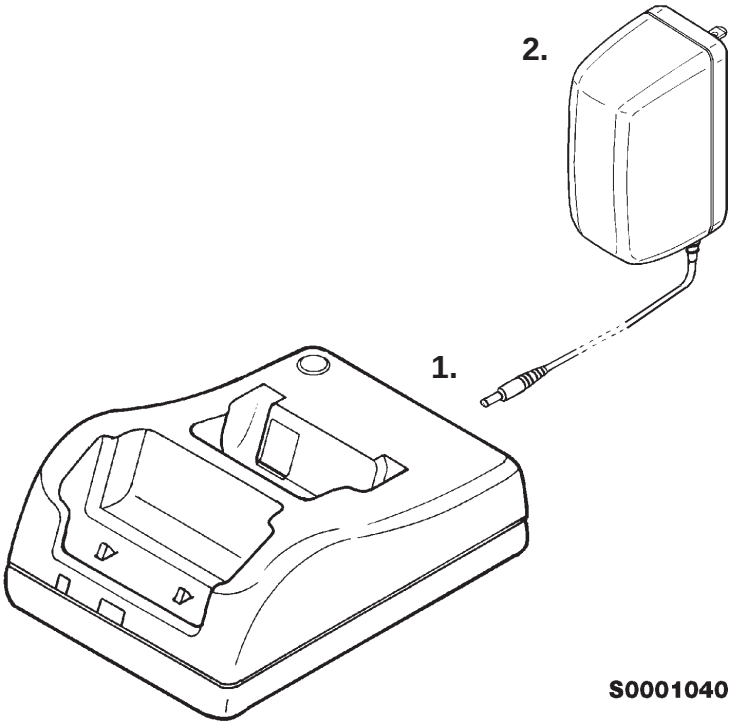
The basic handportable package offers the user a battery pack and fast travel charger for charging from mains. The package contains the following product:



Item/name:	Type code:	Material code:
1. Transceiver; see previous page		
2. Battery pack	BBH–1S	0670027
3. Fast travel charger (USA plug)	ACH–4U	0675036

Desktop Option

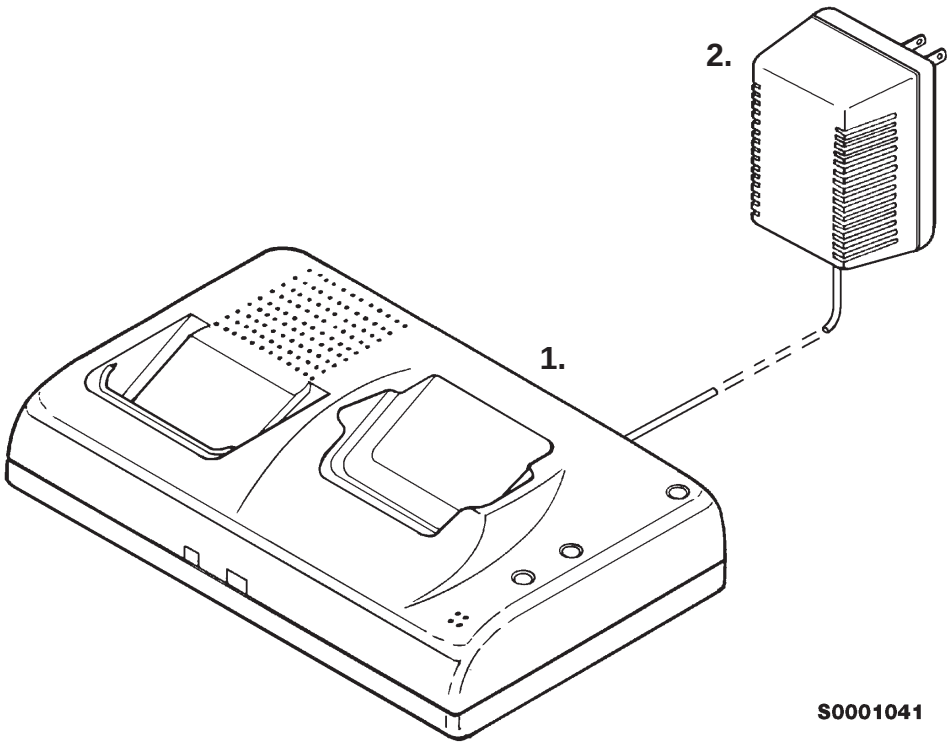
The desktop option allows the user to charge the handportable and spare battery from mains. With this option the user can also discharge the spare battery. The desktop option contains the following product:



Item/name:	Type code:	Material code:
1. Desktop charger	CHH–2	0675022
– Desktop charger	CHH–2L	0260611
2. Fast travel charger (USA plug)	ACH–4U	0675036

HF Desktop Option

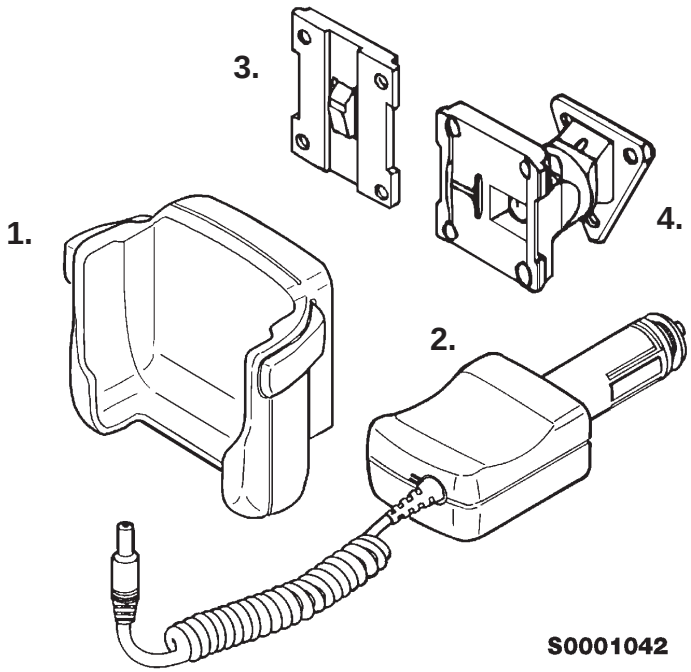
This option contains the same functions as the desktop option and also offers a full handsfree functions which can be used when the phone is in the HF desktop charger. The use of the product can be extended for office use with following accessories:



Item/name:	Type code:	Material code:
1. HF desktop charger	CHH–8P	0630078
2. AC power supply (USA plug)	ACS–6U	0680018

Light Car Kit Options

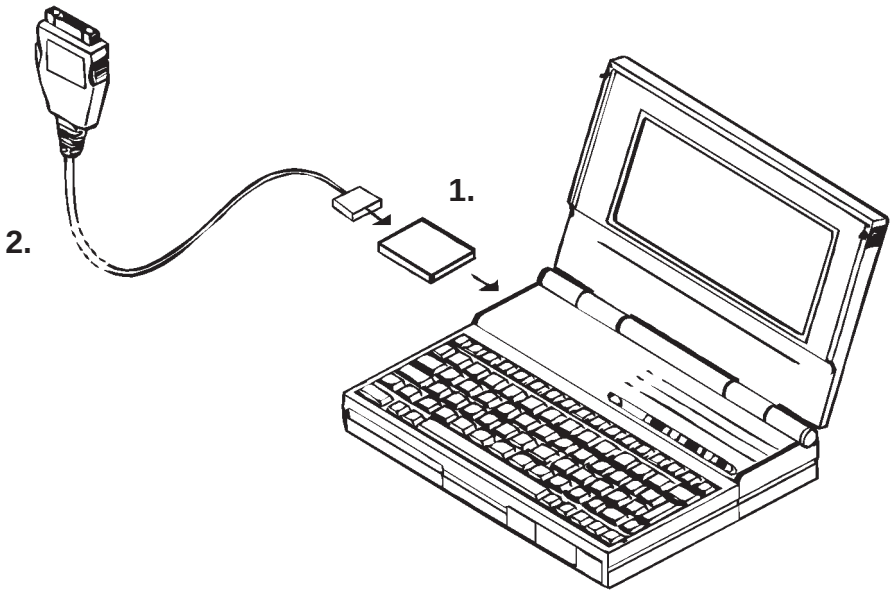
This option offers a passive cradle and charging functions to the user in the car installation. The light car kit option contains the following product:



Item/name:	Type code:	Material code:
1. Mobile holder	MBH–6	0620009
2. Cigarette lighter charger	LCH–2	0675005
3. Mounting plate	MKE–1	0650007
4. Swivel mount	HHS–1	0650006

Data Options

The data options offers for user the standard handportable use with different data accessories.



Item/name:	Type code:	Material code:
1. PCMCIA Card	DTP–8	0750088
2. Data cable	DKH–4	0730037

Product and Module List

Unit/type:	Product code:	Module code:
Transceiver NHB–3NB (Nokia 2190E)	0501008	
• system module DB6		0200943
• display module DU8		0200173
• mechanics MNHB2NB		0260740
Battery pack BBH–1S (550 mAh; NiMH)	0670027	
Battery pack BBH–1H (1500 mAh; NiMH)	0670028	
Battery pack BBH–2S (400 mAh; NiCd)	0670029	
Battery pack BBH–2H (1200 mAh; NiCd)	0670030	
Battery pack BBH–1XV (550 mAh; NiMH vibra)	0670119	
Fast travel charger ACH–4U (USA plug)	0675036	
AC power supply ACS–6U (USA plug)	0680018	
Universal fast charger ACP–3	0675083	
Cigarette lighter charger LCH–2	0675005	
• charging module AL4		0200315
• mechanics MLCH2		0260062
Desktop charger CHH–2	0675022	
• charging module DC2		0200184
• mechanics MCHH2		0260217
Desktop charger CHH–2L	0270406	
HF desktop charger CHH–8P	0630078	
• main module DC3		0200211
• connector module DC4		0200235
• mechanics MCHH8P		0260218
Mobile holder MBH–6	0620009	
Mounting plate MKE–1	0650007	
Swivel kit HHS–1	0650006	
PCMCIA card DTP–8	0750088	
Data cable DKH–4	0730037	
Wrist strap SWH–1	0720005	
Belt adapter BCC–1	0270333	
Carry case CBH–5DX	0720032P	

Technical Specifications

General Specifications of Transceiver

Temperature range:	*–10...+55° C*
Operating time; with BBH–1S	
• talk time:	*1 h 30 min*
• standby time:	*22 h*
Supply voltage:	*5.3...8.8 V*
Nominal current consumption	
• extended standby mode:	*30 mA*
• standby mode:	*16 mA*
• conversation mode:	*315 mA*
Dimensions (h x w x d)	
• transceiver + BBH–1S:	*148 x 56 x 25*
• transceiver + BBH–1H:	*148 x 56 x 37*
Weight	
• transceiver + BBH–1S:	*234 g*
• transceiver + BBH–1H:	*318 g*

Electrical Specifications

Transceiver General Specifications

Cellular system:	*DCS1900*
TX frequency band:	*1850...1910 MHz*
RX frequency band:	*1930...1990 MHz*
Duplex spacing:	*80 MHz*
Number of RF channels:	*299*
Channel spacing:	*200 kHz*
Output power:	*0.001...1 W*
Number of TX power levels:	*16*
Sensitivity:	*–102 dBm / S/N>8 dB*
Frequency error:	*± 0.1 ppm*
RMS phase error:	*5.0*

Transmission Specifications

TX frequency range:	*1850...1910 MHz*
Type:	*Upconversion*
Intermediate frequency:	*200 MHz*
Maximum output power:	*1 W (30 dBm)*
Gain control range:	*30 dB*
Maximum RMS phase error:	*5 deg.*

Reception Specifications

RX frequency range:	*1930...1990 MHz*
Type:	*Linear, 3 IFs*
Intermediate frequencies:	*313, 87 and 13 MHz*
3 dB bandwidth:	*± 100 kHz*
Reference noise bandwidth:	*270 kHz*
Sensitivity:	*–102, S/N ratio > 8 dB, BN=135 kHz*
AGC dynamic range:	*typ. 93 dB*
Receiver gain:	*typ. 71 dB*
RF front end gain control range:	*39 dB*
2nd IF gain control range:	*–102...–10 dBm*
Gain relative accuracy in rx band:	*± 1.5 dB*
Gain relative accuracy on channel:	*± 0.4 dB*

General Specifications of Accessories

Battery Pack BBH–1S

Dimensions (h x w x d):	*101 x 56 x 8 mm*
Weight:	*100 g*
Capacity:	*550 mAh*
Cells:	*5*
Quick charging temperature:	*+5...45°C*

Battery Pack BBH–1H

Dimensions (h x w x d):	*101 x 56 x 20 mm*
Weight:	*165 g*
Capacity:	*1500 mAh*
Cells:	*5*
Quick charging temperature:	*+5...45°C*

Battery Pack BBH–2S

Dimensions (h x w x d):	*101 x 56 x 8 mm*
Weight:	*102 g*
Capacity:	*400 mAh*
Cells:	*5*
Quick charging temperature:	*+5...45°C*

Battery Pack BBH–2H

Dimensions (h x w x d):	*101 x 56 x 20 mm*
Weight:	*155 g*
Capacity:	*1200 mAh*
Cells:	*5*
Quick charging temperature:	*+5...45°C*

Battery Pack BBH–1XV

Dimensions (h x w x d):	*101 x 56 x 15 mm*
Weight:	*120 g*
Capacity:	*550 mAh*
Cells:	*5*
Quick charging temperature:	*+5...45°C*

AC Fast Travel Charger ACH–4U

Dimensions (h x w x d):	*52 x 35 x 73 mm*
Weight:	*95 g*
Mains plug type:	*USA*
Output d.c. connector type:	*Standard d.c. connector 3.8 mm*
Lenght of cable:	*2 m ±10 %*
Input voltage: • ACH–4U	 *120 V a.c. ±10 % 60 Hz*
Output voltage:	*12 ±1 V*
Output current:	*800 ±70 mA*
Charging time • BBH–1S (uncharged –> 80 % full): • BBH–1H (uncharged –> 80 % full):	 *40 min* *1 h 45 min*
Protection:	*output current limiting, max. 870 mA & volt. limiting, max. 13.5 V(unload.)*

AC Power Supply ACS–6U

Dimensions (h x w x d):	*96 x 63 x 73 mm*
Weight:	*< 500 g*
Mains plug type:	*USA*
Output d.c. connector type:	*Standard d.c. connector 5.5 mm*
Lenght of cable:	*2.0 m*
Input voltage: • ACH–6U	 *120 V a.c. ±10 %*
Output voltage:	*13.8 V*
Output current:	*900 mA*
Protection:	*output current limit*
Dimensions (h x w x d):	*96 x 63 x 73 mm*

Cigarette Lighter Charger LCH–2

Dimensions (h x w x d):	*28 x 44 x 110 mm*
Weight:	*120 g*
Cig. lighter connector plug type:	*D 21/23 mm*
Output d.c. connector type:	*Standard d.c. connector 3.8 mm*
Lenght of spiral cable:	*2.0 m*
Input voltage:	*9...32 V d.c.*
Output voltage:	*5.0...10.0 V/800 mA* *12.5 V ±1.0 V/0...400 mA*
Protection:	*Input fused, output current limit*

Light Desk Stand CHH–2L

Dimensions (h x w x d):	*28 x 44 x 110 mm*
Weight:	*53g*
Input voltage (from ACH–4U):	*9...18 V d.c.*
Input d.c. connector type:	*Standard d.c. connector 3.8 mm*
Protection:	*Output current limit, max. 870 mA*

Desktop Charger CHH–2

Dimensions (h x w x d):	*37 x 71 x 99.5 mm*
Weight:	*65 g*
Input voltage (from ACH–4U):	*9...18 V d.c.*
Input d.c. connector type:	*Standard d.c. connector 3.8 mm*
Output voltage to phone	
• constant voltage:	*12.0 ±1 V at 0 to 800 mA*
• constant current:	*800 ±70 mA within 5...10 V*
Discharge current:	*135 mA ±30 mA nominal*
Discharge end voltage:	*5 V (1 V/cell) ±4 %*
Charging time	
• BBH–1S (uncharged –> 80 % full):	*40 min*
• BBH–1H (uncharged –> 80 % full):	*1 h 45 min*
Discharge time	
• BBH–1S :	*2 h 30 min*
• BBH–1H:	*9 h*

Desktop Charger CHH–8P

Dimensions (h x w x d):	*43 x 167 x 113 mm*
Weight:	*360 g*
Input voltage (from ACS–6U):	*11...20 V d.c.*
Input d.c. connector type:	*Standard d.c. connector 5.5 mm*
Output voltage to phone	
• constant voltage:	*12.0 ±1 V at 0 to 800 mA*
• constant current:	*800 ±70 mA within 5...10 V*
Charging time	
• BBH–1S (500 mAh):	*55 min*
• BBH–1H (1500 mAh):	*2 h*
• BBH–2S (400 mAh):	*45 min*
• BBH–2H (1100 mAh):	*2 h 40 min*
Discharge time	
• BBH–1S (500 mAh):	*4 h 20 min*
• BBH–1H (1500 mAh):	*13 h*
• BBH–2S (400 mAh):	*3 h 30 min*
• BBH–2H (1100 mAh):	*10 h*

Mounting Plate MKE–1

Dimensions (h x w x d):	*7.3 x 45 x 48 mm*
Weight:	*8 g*

Swivel Mount HHS–1

Dimensions (h x w x d):	*73 x 69 x 51.5 mm*
Weight:	*30 g*

Mobile Holder MBH–6

Dimensions (h x w x d):	*73 x 69 x 51.5 mm*
Weight:	*62 g*

PCMCIA Card DTP–8

Dimensions (h x w x d):	*54 x 85.5 x 5 mm*

Data Cable DKH–4

Length:	*600 m*
Weight:	*28g*

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